

## **Pyro Fuse - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029**

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### **Report description:**

The global pyro fuse market was valued at USD 504.31 million in the current year and is expected to reach USD 883.10 million after five years by registering a CAGR of 11.86% over the forecast period.

#### Key Highlights

- Governments across the globe are encouraging electric vehicle production using subsidies and regulations, but instead of fossil-fueled vehicles that threaten our environment, consumers want less emissions on their commute. However, in the last ten years, there has been an increasing demand for EVs from Original Equipment Manufacturers, Customers, and Governments. This has led to significant investments in electric vehicle manufacturing and battery technology.
- Concurrently, the demand for high-voltage battery-equipped electric vehicles is witnessing the order in the consumer market as most electric vehicle (EV) batteries are lithium-ion battery energy sources that can deliver a safe and effective interruption of electricity in typical operation situations using heavy vehicle (HV) Contactors. However, to safeguard the lives and the vehicle during the accident, Pyrofuses in electric vehicles are among the most common devices for protecting EVs from fires and short circuits.
- The most common causes of accidents and injuries in power plants, telecommunication, or automotive manufacturing sectors are exposure to electricity or electrical faults. In the United States, between 2011 and 2021, 1,201 workplace fatalities involving electricity were reported by the Occupational Safety and Health Administration, and the Bureau of Labor Statistics reported 1,653 electrical fatalities. Growing electrical injuries in different industries are anticipated to drive the studied market growth during the forecast period.
- Technological developments, with ongoing R&D efforts to enhance product performance, efficiency, and compatibility with various electricity systems, play an essential role in the PyroFuse market. Autoliv, Daicel, Pacific Engineering Corporation (PEC), Littelfuse, Eaton, and MTA SpA are some of the world's leading producers of PyroFuse.

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-However, based on recent developments, semiconductor switches have been used as hybrid switches in high-voltage batteries. Compared to conventional solutions, switches offer a wide range of advantages. Wider acceptance of semiconductor switches might limit the growth of the Pyro Fuse market during the forecast period.

## Pyro Fuse Market Trends

Automotive application segment is expected to show significant growth

- Governments and cities have put regulations and incentives to accelerate the shift towards sustainability of mobility. Regulators around the world are defining a more stringent emissions target. For instance, the European Union announced a program called FIT for 55, which aims to bring together climate change, energy, land use, transport, and tax policies to reduce net greenhouse gas emissions by 55% between 2023 and 2030, while the Biden Administration has launched an ambitious 50% electric vehicle (EV) target for 2030. In addition to these mandates, subsidies for electric vehicles are also offered by the majority of governments.

- Pyrofuse is a rapid, automatic fuse that permanently shuts down high-voltage batteries from circuits in case of major accidents. Pyrotechnic safety switches (PSS) are triggered by an airbag control system or BMS and safely, reliably interrupt circuits before a short course can happen due to vehicle deformation. To ensure optimum protection for the vehicle and its driver with their brands, all vehicle manufacturers prioritize security issues, which means that many sensors, pyro fuses, and switches are installed in passenger cars and commercial vehicles.

- DEKRA, a European vehicle inspection company, has studied the effects of substantial body deformation following an accident. Their analysis showed that almost 90% of road collisions at speeds above 80 km per hour resulted in a subsequent fire. The extreme deformation results in an electrical failure on the strongest conductor, e.g., a cable that links the battery to the starter generator. In general, there is insufficient protection between the starter and generator cable in wire harnesses. These exposed or damaged cables can pose short-circuit risks to passengers and rescue workers in a disaster. These trends are anticipated to drive market growth during the projected period.

- According to International Energy Agency (IEA), electric vehicles amounted to some 14 percent of global passenger car sales in 2022, a rise of around 5.3 percentage points year-over-year. Electric vehicle sales have rapidly increased since 2017, when they rose above one percent of the market, and have particularly accelerated since 2020. Increasing the adoption of EVs simultaneously will drive market growth globally in the coming years.

Asia-Pacific is expected to register a significant growth

- The Asia-Pacific region comprises China, Japan, India, South Korea, and the rest of Asia Pacific. The analysis considers the entire area; however, a significant portion covers countries like China, Japan, India, etc. According to the International Energy Agency (IEA), in China, 29% of the car market in 2022 was powered by energy vehicles. By 2022, electric vehicles represented around 1.5% of India's automotive market.

- The Government of India has submitted a National Mobility Mission Plan 2020, which aims to increase national energy security, mitigate adverse effects on the environment from road transport vehicles, and improve production capacity for electric vehicles at home.

- In addition to this, the Government has notified Phase II of the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme to stimulate the market of electric vehicles (EVs) in the country, de-licensed the charging infrastructure business, and specified guidelines & standards for charging infrastructure for electric vehicle thereby opening up the need of public charging infrastructure & ensuring a roadmap for the development of charging infrastructure, and, to decrease the upfront costs

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of electric vehicles and chargers, have set up a series of financing incentives.

- Moreover, several significant players in the Pyro Fuse Market are based in the Asia-Pacific region, which has a substantial market share. The three biggest Pyro Fuse suppliers, Autoliv, Daicel, and Pacific Engineering Corporation, accounted for about 65.13% of the revenue in 2022 (Out of these three companies, two are based in Japan). These trends are expected to accelerate the market growth in the region during the forecast period.

## Pyro Fuse Industry Overview

The pyro fuse market exhibits a moderate level of fragmentation, with both domestic and international players contributing to its dynamism. These industry participants are actively engaged in partnerships, new product innovations, mergers, and acquisitions, all aimed at fortifying their positions within the market. Some of the noteworthy companies operating in this sector include Daicel Corporation, Autoliv, Inc., Eaton Corporation, Mersen Group, and Rheinmetall AG. Several significant developments have taken place in recent years:

In April 2022, the power management company Eaton made a substantial announcement regarding its e-mobility business. Eaton secured a contract with a European vehicle manufacturer to supply its Breaktor circuit protection technology. This cutting-edge technology is designed for use in a variety of 800-volt battery electric vehicles (BEVs). Breaktor technology revolutionizes circuit protection in BEVs by combining the functionalities of pyro switches, fuses, and contactors into a single integrated device.

In January 2022, Rheinmetall received the prestigious '2021 Technology Innovation Award' for its high voltage pyro fuses. Rheinmetall, a technology-driven company, has developed Pyrofuse, a breakthrough innovation that garnered recognition through the "2021 China's Automotive and Parts Industry" Developing & Innovation Award. This innovation promises to deliver advanced solutions to a rapidly expanding market.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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